What is claimed is:

1. A cardiovascular imaging agent comprising a radionuclide, said radionuclide being associated with a targeting moiety comprising a component of a process involved in plaque formation.

Sub A2

2. The agent of claim 1, wherein said radionuclide is selected from the group consisting of ^{123}I, ^{99m}Tc, ^{18}F, ^{68}Ga, ^{62}CU, and ^{111}In.

3. The agent of claim 1, wherein said radionuclide is ^{99m}Tc.

4. The agent of claim 1, wherein said radionuclide is associated with said targeting moiety by way of an auxillary molecule.

5. The agent of claim 1, wherein the targeting moiety is one of (i) cells, including muscle cells, macrophages, foam cells, moncytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platele factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascade.

6. The agent of claim 1, wherein said agent comprises the product of combining said targeting moiety or precursor thereof with a chelating compound which chelates said radionuclide.

7. The agent of claim 6, wherein said chelating compound is selected from the group consisting of an $-N_2S_2$ structure, an $-NS^3$ structure, an $-N_4$ structure, an isonitrile, a hydrazine, a HYNIC group-containing structure, 2-methylthiolnicotinic acid group-containing structure, a carboxylate-group containing structure, an amino carboxylate, and a phenolate.

8. The agent of claim 1, wherein said plaque is an atherosclerotic plaque.

9. A method of imaging cardiovascular tissue in a mammal, comprising administering to the mammal a cardiovascular imaging agent having a radionuclide, said radionuclide being associated with a targeting moiety comprising a component of a process involved in plaque formation.

Sub A2 cont

10. The method of claim 9, wherein the method detects a cardiovascular lesion in a mammal, said method comprising the steps of administering to the mammal said imaging agent, detecting the spatial distribution of said agent accumulated in the mammal's cardiovascular system, wherein a detected accumulation of said agent in a region which is different from the detected accumulation of said agent in other regions is indicative of a lesion.

11. The method of claim 10, wherein said cardiovascular lesion is an atherosclerotic lesion.

12. A kit for cardiovascular imaging, comprising a supply of the imaging agent or a precursor of the imaging agent having a radionuclide, said radionuclide being associated with a targeting moiety comprising a component of a process involved in plaque formation.

13. The kit of claim 12, further comprising at least one chelating agent, each chelating agent comprising an auxiliary molecule selected from the group consisting of mannitol, gluconate, glucoheptonate, and tartrate; and a reducing agent.

14. The kit of claim 13, wherein said reducing agent contains tin.

15. The kit of claim 13, wherein the radionuclide of said imaging agent is selected from the group consisting of ^{123}I, ^{99m}Tc, ^{18}F, ^{68}Ga, ^{62}CU, and ^{111}In.

AMENDED SHEET

Sub A2 Cont.

16. The kit of claim 15, wherein said chelating agent(s) is (are) selected from the group consisting of an $-N_2S_2$ structure, an $-NS^3$ structure, an $-N_4$ structure, an isonitrile, a hydrazine, a HYNIC group-containing structure, 2-methylthiolnicotinic acid group-containing structure, a carboxylate-group containing structure, an animo carboxylate, and an amino phenolate.

17. The kit of claim 16, wherein the radionuclide is ^{99m}Tc .

18. The kit of claim 13, wherein the targeting moiety is one of (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platele factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascase.